INFORMATION REPORT INFORMATION REPORT

CENTRAL INTELLIGENCE AGENCY

S-E-C-R-E-T

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COUNTRY East Germany

REPORT

SUBJECT Aircraft Industry: Manufacture and Testing Engines; Titanium Carbide Blades; Organization (Turbo-jet)

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SOURCE EVALUATIONS ARE DEFINITIVE. APPRAISAL OF CONTENT IS TENTATIVE.

014 Engines

1. Up to the end of October 1958, nine 014 engines (Versuchsobjekte) have been completed by the VEB Entwicklungsbau, Pirna; a total of thirteen is foreseen for the whole year of 1958.

2. In October 1958, 014 Versuchsobjekt 7 completed a 200-hour test run with checks after 30, 80 and 150 hours. Maximum laminar flow (Abreissgrenze) proved to be at 6,800 rpm instead of the 8,400 rpm at which the engine develops its full capacity. It is hoped that this can be overcome by fitting the first and second compressor stages with adjustable guide vanes (Leitschaufeln). Otherwise the run was satisfactory. However, an attempt to run a 500-hour test on Versuchsobjekt 7 had to be discontinued because the vanes broke off.

3. Versuchsobjekt 7 has a higher rate of flow (Luftdurchsatz) than the earlier models and a reduction in weight, notably of turbine and compressor. The earlier models, 1-6, all exceed their specified weight by 50 kg. each.

4. It is planned to test two 014s in flight in an IL-28 at the end of 1958.

ENCLOSURE ATTACHED PLEASE ROUTE

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016 Engines

5. The 016 is a further development of the 014 intended for use in the second variant of the 152 aircraft. It is not, as was at one time reported, in any way connected with the development of a marine jet engine. The marine engine project is believed still to be in the preliminary planning (Vorprojektierung) stage.

017 Engine

6. The East German Navy is very interested in use of the 017 as an emergency power supplier (Notstromaggregat).

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7. Changes have been made in the layout of Variant A of the 017; there are four instead of two sets of bearings, so that turbine and compressor have independent bearings (See Attachment).

Titanium Carbide Blades

8. The titanium carbide blades, previously reported to be used in the 017 engine will also be used in the 014, 016 and 018, if successfully used in the 017. [redacted] It is hoped that these blades will withstand temperatures up to 1000° C. So far these blades have reached the blueprint stage and tests are not to be anticipated before mid-1959. Series manufacture of these blades will be undertaken by a firm in Immelborn, Thuringia, believed to be called VEB Feinmetallwerk. The Immelborn firm is currently engaged in preparing the jigs (Schablonen) and molds (Gussformen) of the blades. 25X1

PTL 018

9. Testing of the compressor together with the gearing of the propellers showed that vibrational amplitude of the compressor increased with revolutions and caused cracking of the propellor gearing.

10. The first Versuchsobjekt of the 018 was placed on the test bed in October 1958, but after a short time the compressor housing (Verdichtergehäeuse) sank 2 mm.

Soviet Engine

11. The Soviet engine, previously reported stripped in hall (Halle) 51 N at Pirna, was subsequently re-assembled and transported to Dresden-Klotzsche. The engine was definitely fitted with after-burning, but temperature is not known. The intake had a diameter of approximately 120 cms. and nothing appeared to be unconventional about its form.

Organization

12. All the nationalized plants (VEBs) of the aircraft industry form part of the VVB Luftfahrt-Industriebetriebe, the headquarters of which movedin early October 1958 from Pirna to Dresden-Klotzsche. An Institute for Board Instruments, an Electro-Technical Institute and an Institute for Research in Basic Materials (Werkstoffkunde) are stillocated in the Pirna complex and are believed to be subordinate to the VVB.

13. The Chemnitz factory is still known as the VEB-Industriewerk Karl-Marx-Stadt.

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